

RADYUK, Dmitriy Prokof'yevich [Radziuk, D.P.]; BARMICHEV, V., [Barmichau, V.], red.;
VALAKHANOVICH, I., tekhn.red.

[On the road to a great upsurge] Pa shliakhu vialikaha uzdymu.
Minsk, Vyd-va Akad.nauk BSSR, 1958. 164 p. (MIRA 12:3)
(White Russia--Economic conditions)

BARMICHEVA, M.

PROSESSES AND PROBLEMS IN

27

Refractometric determination of the oil content in flaxseeds. N. Rubinskii and M. Barmicheva. *Moskovskie Zhivotovye Deda* 13, No. 3, 52 (1937). Results accurate to 0.01-0.27% were consistently obtained by crushing 20 g. of flaxseed in a hand mill and triturating 1.2-1.5 g. of the meal in a porcelain mortar with 1 g. of washed sand for 1 min. and then adding 7.8 g. CuHgBr for another 3 min. To obtain a representative η value, it is necessary to complete the filtration before the demin. and compare the results with the η value of the C₁₂H₂₂O₁₁. Chas. Blanc.

ASH-SEA METALLURGICAL LITERATURE CLASSIFICATION

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BARMIN, A.

Na reke Chusonoi. [On the river Chusovain]. (Vokrug sveta, 1951, no. 6, p. 31-35).
ELOC: G1.V6

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SO: Monthly List of Russian Accessions, Vol 7, No 9, Dec 1954

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AUTHORS: Barmin, A. A. and Gogosov, V. V.TITLE: The Piston Problem in MagnetohydrodynamicsPERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 5,
pp. 1041 - 1043

TEXT: The authors studied the motion of a piston in a conducting medium without presupposing restrictions in velocity or in the magnetic field. Piston and medium are assumed as being ideally conductive, and it is further presupposed that the internal energy of the medium be related to pressure and density by the relation $e = \gamma p(\gamma - 1)\rho$. A diagram constructed in the velocity space served for determining the combinations of propagation rates of shock waves, of rarefaction waves, and of rotational discontinuities. The construction of this diagram presupposes the knowledge of relations between the absolute gas velocities u, v, w behind the shock waves, the velocities of rarefaction waves, and the discontinuities with respect to the Alfvén velocity in the undisturbed medium. These relationships are discussed, and the diagram is then set up in the

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velocity space. The mode of combination of waves in the plasma is inferred from the position of the piston velocity in the diagram. If Y^+ and Y^- correspond to fast and slow shock waves, P^+ and P^- to fast and slow rarefaction waves, and A to a discontinuity, the following combinations will be possible: P^+AY^- , Y^+AY^- , P^+AP^- , and Y^+AP^- . Moreover, the diagram includes planes and lines, where P^+ and Y^- , P^+ and Y^+ , and A , respectively, are vanishing. A. G. Kulikovskiy, G. S. Golitsin, I. A. Akhiyezer, R. V. Polovin, and G. Ya. Lyubarskiy are mentioned. The authors thank A. G. Kulikovskiy and G. A. Lyubimov for their discussions and remarks. There are 1 figure and 13 references: 11 Soviet and 2 US.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

PRESENTED: May 19, 1960, by L. I. Sedov, Academician

SUBMITTED: May 8, 1960

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AUTHOR: Barmin, A. A.

TITLE: Discontinuity surfaces with liberation or absorption of energy in magnetohydrodynamics

PERIODICAL: Doklady Akademii nauk SSSR, v. 139, no. 1, 1961. 77-80

TEXT: A study has been made of discontinuity surfaces in an electrically conductive medium (conductivity being taken to be infinite) with arbitrary magnetic field, the internal energy being given by $p/(\gamma - 1) + C$. Conditions in the discontinuity are described by equations

$$v_1^2 = (\Delta h + h_1)z + 1; \quad (1)$$

$$v_2^2 = h_1 z + 1; \quad (2)$$

$$\Delta P = \Delta h [z - 1/2 (\Delta h + 2h_1)]; \quad (3)$$

$$\Delta P' = \Delta h z; \quad (4)$$

$$\Delta R = \Delta h z / (h_1 z + 1); \quad (5)$$

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$$\begin{aligned} z \Delta h [2h_1 - (\gamma - 1)\Delta h] - 2z [\Delta h (h_1^2 + \gamma_2 P_1 - 1) + q - \\ - \frac{1}{2}(\gamma_2 - 2)h_1 \Delta h] + h_1 q = \Delta h [\Delta h + 2h_1] - 2q = 0. \end{aligned} \quad (6)$$

Indices 1 and 2 refer to quantities before or behind the discontinuity.
 $h_i = H_{ri}/H_n = \tan \alpha_i$, where α_i is the angle between the magnetic field and
the normal to the discontinuity surface; z is the cotangent of the angle
of rotation of velocity in the discontinuity; v_1 and v_2 are the velocities
of discontinuity relative to the gas before and behind the shock wave,
the Alfvén velocities being given by $V_{Ai} = H_n / \sqrt{4\pi \rho_i}$; a_+ and a_- are the
velocities of, respectively, the fast and the slow magnetohydrodynamic
wave: $\Delta P = P_2 - P_1 = (p_2 - p_1) / \frac{H_n^2}{4\pi}$ is the jump of the reduced pressure in the
discontinuity; ΔP^* is the jump of the total pressure in the discontinuity;

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for q holds: $\frac{H_2^2}{H_1^2} = \frac{\gamma_2 - \gamma_1}{\gamma_1 + \gamma_2} \cdot \frac{P_1}{P_2}$, where Q is the formation

energy being liberated or absorbed. A study of the system of equations (1) - (6) shows that during the development of discontinuity the following types of discontinuity arise: discontinuities with liberation of energy ($q > 0$) give rise to 1A) Super-Alfvén detonation waves. Relations

$v_1^2 > a_{1+}^2$, $v_2^2 \leq a_{1+}^2$, hold, and the maximum conduction wave is attained with

$\Delta h = 2h_1/(\gamma_2 - 1)$ 1B) Sub-Alfvén detonation. Inequalities $a_{1+}^2 < v_1^2 \leq 1$,

$v_2^2 \leq a_{2-}^2$, hold here. Here, the reaction zone follows behind the slow

magnetohydrodynamic shock wave. To calculate the detonation it is sufficient to know the initial density, the initial pressure, the magnetic field, q, and Δh or τ , which characterize the intensity of the explosion.

2A) Fast super-Alfvén burning. Here, the velocities satisfy the following inequalities: $a_{1+}^2 \leq v_1^2$, $a_{1+}^2 \leq v_2^2$. In gas dynamics, flames with forced velocities correspond to this type of explosion. 2B) Fast sub-

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Discontinuity surfaces with liberation

Alfvén burning. For the velocities holds: $a_1^2 < v_1^2 \leq 1$, $a_2^2 \leq v_2^2 \leq 1$. This type of explosion does not appear with such values of q_1 , where sub-Alfvén detonations arise. (2C) Slow super-Alfvén burning. For the velocities holds: $1 \leq v_1^2 < a_1^2$, $v_2^2 \leq a_2^2$. The gas-dynamic pressure may both drop and rise here, and this form of explosion corresponds in gas dynamics to burning with subsonic velocity. (2D) Slow sub-Alfvén burning. Here, for the velocities holds: $v_1^2 \leq a_1^2$ and $v_2^2 \leq a_2^2$. No process in gas dynamics corresponds to this type. For calculating discontinuities of the type of burning it is sufficient to know the initial pressure, the initial density, the magnetic field, q , and v . In discontinuities with energy absorption ($q < 0$) the following types of discontinuity develop: (3A) A super-Alfvén discontinuity with absorption of the type of a detonation. For the velocities holds: $v_1^2 \geq a_1^2$, $v_2^2 < a_{2+}^2$. In this discontinuity, the reaction zone follows behind the fast magnetohydrodynamic shock wave. The pressure

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Discontinuity surfaces with liberation...

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jump is positive for small $|q|$, and is negative for large $|q|$. For a given $q = q^*(\Delta h)$, $\Delta P = -P_1$, i.e., the pressure behind the discontinuity is vanishing. 3B) Sub-Alfvèn discontinuities with absorption of the detonation type. Here, for the velocities holds: $a_{1-}^2 \leq v_1^2 \leq 1$, $v_2^2 < a_{2+}^2$. The reaction zone moves behind the slow magnetohydrodynamic shock wave. With sufficiently large energy absorption this type of discontinuity does not arise ($2q < -\{2\gamma_2 P + (\gamma_2 - 1)(h_1^2 + 1)\}$). On a drop of q from 0 to q_c the condensation wave tends to infinity with fixed v_1 , the jumps of the gas-dynamic pressure and of total pressure increase up to v_1^2 and $v_1^2(v_1^2 h_1^2 + h_1^2 + 1)$, respectively, where v_2^2 vanishes. 4A) Fast super-Alfvèn discontinuities with endothermic reaction. Inequalities $v_1^2 \geq a_{1+}^2$, $v_2^2 > a_2^2$ hold here, where $v_1^2 < v_2^2$. 4B) Fast sub-Alfvèn discontinuities with endothermic reaction: $a_{1-}^2 \leq v_1^2 \leq 1$, $a_{1-}^2 \leq v_2^2 < 1$. The absolute values of the

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Discontinuity surfaces with liberation...

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pressure jumps, of the density jumps, and of the magnetic field grow with a drop of q in the two last-mentioned cases for given v_1 . For a given $q = q^*(v_1)$, the pressure behind the discontinuity vanishes. 3C) Slow super-Alfvén discontinuities with endothermic reaction: $v_1^2 < v_2^2 < a_{1+}^2$, $1 < v_2^2 < a_{2+}^2$. Here, the jump of ordinary pressure can be positive and negative. 4D) Slow sub-Alfvén discontinuities with endothermic reaction: $v_1^2 < a_{1-}^2$, $v_2^2 < a_{2-}^2$. Here, the condensation wave tends to infinity for given v_1^2 with a drop of q , the pressure jumps and the magnetic field attain a determined value, in which v_2^2 vanishes. There are 4 Soviet-bloc references.

ASSOCIATION: Nauchno-issledovatel'skiy institut mehaniki Moskovskogo gosudarstvennogo universiteta im. M. V. Lomonosova (Scientific Research Institute of Mechanics, Moscow State University imeni M. V. Lomonosov)

Card 6/7

41504

S/040/62/026/005/001/016
D234/D308

AUTHOR: Barmin, A. A. (Moscow)

TITLE: Investigation of surfaces of discontinuity with li-
beration (absorption) of energy in magnetohydrodyna-
micsPERIODICAL: Prikladnaya matematika i mekhanika, v. 26, no. 5,
1962, 801-810TEXT: The author considers surfaces of discontinuity at which exo-
or endothermal reactions take place; it is assumed that the medium
has infinite electric conductivity, the dependence of internal
energy on pressure p and density ρ is $e = p/(\gamma-1)\rho + C$, γ and C
change at the discontinuity, $p = R_0 \rho T$, the flow of mass across thesurface is not equal to 0, and there is a discontinuity in ρ . The
magnitude and direction of the velocity and the magnetic field in-
tensity are not restricted. It is found that in the general case
two kinds of detonation and two kinds of shock ionization are poss-
ible (super-Alfven and infra-Alfven - in the first kind the ioniza-

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Investigation of surfaces ...

S/040/62/026/005/001/016
D234/D308

tion or detonation zones follow the fast shock wave, in the second they follow the slow shock wave). Furthermore, four kinds of burning discontinuities are possible (fast or slow, infra-Alfven or super-Alfven). The change of discontinuities of pressure, density, magnetic field, velocity, temperature and entropy is analyzed in detail. Conditions are derived under which infra-Alfven detonation and slow infra-Alfven burning are possible. V. P. Demutskiy and R. V. Polovin are mentioned for their contributions in the field. There are 6 figures.

SUBMITTED: April 25, 1962

Card 2/2

BARMIN, A.A.; KULIKOVSKY, A.G. ; LOBANOVA, L.F. (Moscow)

"Linearized problem of supersonic flow at the entry of the MHD-generator"

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 January - 5 February 1964

L 43712-65 EWT(1)/EWP(m)/EPA(sp)-2/EHG(v)/EPR/EPA(w)-2/I-2/EWA(m)-2 Pd-1/Pab-10/
Pe-5/Ps-4/Pi-4 IJP(c) GS
ACCESSION NR: AT5009750 UR/0000/64/004/000/0023/0032

66
B+1

AUTHOR: Barnin, A. A.

TITLE: The decay of an arbitrary magnetohydrodynamic discontinuity in the presence of a surface discontinuity with emission (absorption of energy)

SOURCE: Soveshchaniya po teoreticheskoy i prikladnoy magnitnoy gidrodinamike. 3d, Riga, 1962. Voprosy magnitnoy gidrodinamiki (Problems in magnetic hydrodynamics); doklady soveshchaniya, v. 4. Riga, Izd-vo AN LatSSR, 1964, 23-32, and inserts following p. 32)

TOPIC TAGS: magnetohydrodynamic discontinuity decay, magnetohydrodynamic discontinuity radiation, super-Alfven detonation, sub-Alfven detonation, super-Alfven ionization, sub-Alfven ionization

ABSTRACT: The decay of an arbitrary magnetohydrodynamic discontinuity was solved earlier by V. V. Gogosov (PM, 1961, 25, 1, 108). V. P. Demutskiy and R. V. Polovin (ZhTF, 1961, 31, 4, 419; ZTF, 1962, 32, 4, 1746) investigated events at the surface of the discontinuity in the presence of emission (absorption) of energy when the magnetic field is weak and the amount of energy is either small or

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L 43712-65
ACCESSION NR: AT5009750

large relative to the square of the sound velocity. The present author solves the decay of an arbitrary discontinuity within an ideal gas with infinite conductivity in a magnetic field of arbitrary magnitude and direction. The emission (absorption) of energy takes place on the surface of the discontinuity, and the discussion covers the case of super- and sub-lvlen detonation and ionization (the four possible combustion fronts have not been investigated). Results in the form of diagrams are given for the illustrative case when the magnetic field and the velocity are in one plane on both sides of the discontinuity. Orig. art. has: 30 formulas and 5 figures.

ASSOCIATION: None

SUBMITTED: 11Aug64

NO EXP Sov: 003

ENCL: 00 SUB CODE: MZ

OTHER: 003

Card 2/2 *llc*

L 2802-66 EWT(1)/EWP(m)/EWA(d)(1)-(5)(k)/EWA(1) WW

ACCESSION NR: AP5021296

UR/0040/65/029/004/0609/0615

AUTHORS: Barmin, A. A. (Moscow); Kulikovskiy, A. G. (Moscow); Lobanova, L. F. (Moscow)

TITLE: Linearized problem on supersonic flow at the inlet into an electrode zone of a magnetohydrodynamic channel

SOURCE: Prikladnaya matematika i mehanika, v. 29, no. 4, 1965, 609-615

TOPIC TAGS: supersonic flow, supersonic gas flow, magnetohydrodynamics, two dimensional flow

ABSTRACT: The effect of an electromagnetic field on supersonic flow of a gas is studied. The problem is visualized as being linear, and the magnetic field is given and variable along the length of the channel. The problem is one of stationary two-dimensional supersonic flow of a gas in a flat channel $-a < y < a$, $-\infty < x < \infty$. The channel walls serve as insulators for $x < 0$ and as conductors for $x > 0$. The gas is ideal with constant conductivity σ , obeying Ohm's Law in the form

$$\mathbf{J} = \sigma \left(\mathbf{E} + \frac{\mathbf{v}}{c} \times \mathbf{H} \right).$$

Additional parameters are the magnetic Reynolds number and the interaction parameter

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$$R_m = \frac{4\pi \mu U a}{\epsilon}, \quad N = \frac{\sigma H_0^2 a}{\rho U c^3},$$

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ACCESSION NR: AP5021296

and the magnetic field is described by

$$\vec{H} = H(x) \vec{e}_x \quad H(x) = \begin{cases} H_0 & \text{for } x > 0 \\ H_0(k^2 + 1) e^{kx/a} (1 + k^2 e^{kx/a})^{-1} & \text{for } x < 0 \end{cases}$$

where \vec{e}_x is a unit vector perpendicular to the plane of flow, and k is a parameter characterizing the magnetic field profile. Some dimensionless parameters are defined for computational use in calculating the electric field. These parameters are incorporated into the linearized hydrodynamics equations. The dimensionless potential parameter is differentiated with respect to the coordinate variables. A plot is made of the electrical current field and its dissipation along coordinate directions of the channel. A numerical solution is set up for an orthogonal grid of coordinate points. Computations were carried out on a Strela computer for various combinations of parameter values. The computed values are plotted and compared in cross-referenced parametric plots. The authors identify a point where a steady state condition prevails and the two dimensional approach may be dropped in favor of the simpler one dimensional problem. Orig. art. has: 6 equations and 7 figures.

ASSOCIATION: none

SUBMITTED: 17Nov64

ENCL: 00

SUB CODE: ME

NO REF Sov: 002

OTHER: 001

Card 2/2 (PC)

BRON, V. A.; DIYESPEROVA, M. I.; SANOK, N. A.; Prinimali uchastiye:
SEMAVINA, K. P.; BARMIN, A. N.

Interaction of refractories with manganese steel. Trudy Vost.
inst. ogneup. no.2:83-100 '60. (MIRA 16:1)

(Refractory materials) (Manganese steel)

BARMIN, B.P.; KONDRATOV, A.S.

Friction dynamic vibration damper. Mashinostroitel' no. 2:12-13
F '63. (MIRA 16:3)
(Damping (Mechanics))

SHAL'NOV, V.A., kand.tekhn.nauk; BARMIN, B.I., kand.tekhn.nauk

Improved means for minor mechanization. Mashinostroitel' no.3:
14-15 Mr '63.

(Technological innovations)

BARMIN, B.P., kand. tekhn. nauk; KONDRATOV, A.S., kand. tekhn. nauk

Resistance to vibration of boring bars. Vest. mashinostr.
43 no.7:59-64 Jl '63. (MIRA 16:8)

(Drilling and boring machinery—Vibration)

KONDRATOV, A.S., kand.tekhn.nauk; BARMIN, B P., kand.tekhn.nauk

Low frequency vibration damper for lathes. Mashinostroyitel'
no. 5832-33 My '64. (MIRA 17:7)

KUDRINOV, A. G., Kand. tekhn. nauk; T. M. N. R. L., Kand. tekhn. nauk

Criteria of the resistance to vibration of a technological system. Vestn. nauchno-tekhn. sv. SSSR. 1977, No. 1, p. 17-7.

KONDRATOV, A.S., kand. tekhn. nauk; BARMIN, B.P., kand. tekhn. nauk

Effect of the vibration of the "machine tool-part-cutting tool" system on the durability of cutting tools. Izv. vys. uchet. zav.; mashinostr. no.2:187-199 '64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy institut tekhnologii i organizatsii proizvodstva.

KONTRATOV, A.S.; BARMIN, B.P.

Relationship between the strength of cutting tools and the
intensity of vibrations. Stan. i instr. 35 no.6:30-32
Je '64 (MIRA 17:8)

BARMIN, B.P., kand. tekhn. nauk

Lobed flexible grinding wheel. Mashinostroitel' no.5:16-18 My '65.
(MIRA 18:5)

BARMIN, L.N., CHUCHMAREV, S.K., YESIN, O.A.

"Gas Permeability of Liquid Slags,"

lecture given at the Fourth Conference on Steelmaking, A.A. Baikov Institute of Metallurgy, Moscow, July 1-6, 1957

BARMIN, L. N.

24-9-17/33

AUTHORS: Barmin, L. N., Yesin, O.A. and Chuchmarev, S.K. (Sverdlovsk)

TITLE: Study by the e.m.f. method of the properties of hydrogen which is dissolved in liquid slags. (Izuchenie svoystv vodoroda, rastvorenного v zhidkikh shlakakh, metodom elektrovdvizhushchikh sil)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1957, No.9, pp.114-118 (USSR)

ABSTRACT: For accurate determination of small quantities of H_2 dissolved in slag it is of interest to use the e.m.f. method which permits study of the behaviour of the hydrogen directly inside the liquid slags; for this purpose it is necessary to build a galvanic cell with oxygen and hydrogen electrodes. The authors of this paper considered it advisable to investigate the behaviour of a hydrogen electrode in slags and to compare two types of oxygen electrodes, namely, the gaseous one and the one made of solid magnesium oxides. Three types of circuits were studied, namely, the hydrogen, the hydrogen-oxygen with a barrier made of MgO and the hydrogen-oxygen with one slag. The experiments were carried out in a SiC furnace, the temperature being measured with a Pt-Pt Rh thermocouple. The diagram of the cell for the first two mentioned circuits

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24-9-17/33

Study by the e.m.f. method of the properties of hydrogen which is dissolved in liquid slags.

is that shown in Fig.1, the diagram of the last mentioned circuit is shown in Fig.2. Data and the results are entered in tables and plotted in graphs. The authors have proved experimentally that the reversible hydrogen electrode can be materialised relatively simply for molten slags which do not contain easily reducible oxides. New experimental data confirm that solid magnesium oxide which is in contact with the liquid slag operates as a sort of oxygen electrode. The measurements have shown that the activity of the water dissolved in the slag is proportional to the square root of the activity of the calcium oxide; this is in agreement with the assumption that the hydrogen in the slag is present in the form of hydroxyl anions. The relation between the e.m.f. of the oxygen-hydrogen cell and the oxygen activity permits considering the negative magnitude of the e.m.f. as a measure of the basicity of the slag. There are 4 figures, Card 2/2 5 tables and 15 references, 5 of which are Slavic.

SUBMITTED: May 20, 1957.

ASSOCIATION: Ural Polytechnical Institute (Ural'skiy Politekhnicheskiy Institut), Sverdlovsk

AVAILABLE: Library of Congress.

BARIN, L. N. Cand Tech Sci -- (disc) "Peculiarities of the behavior of hydrogen in liquid slags and metals." Sverdlovsk, 1990. 11 pp (Min of Higher Education USSR. Ural Polytechnic Inst in S. M. Kirov), 1st series (KL, 62-13, 1c1)

-64-

CHUCHMAR'EV, S.K., kand.tekhn.nauk, dotsent; YESIN, O.A., doktor tekhn.nauk,
prof.; BARMIN, L.N., inzh.

Effect of electric current on the behavior of hydrogen dissolved
in liquid metal. Izv. vys. ucheb. zav.; chern.met. no.5:59-64
My '58. (MIRA 11:?)

1.Ural'skiy politekhnicheskiy institut.
(Metals--Hydrogen content) (Liquid metals)

BARMIN, L.N., inzh.; YESIN, O.A., doktor tekhn.nauk, prof.; CHUCHMAROV,
S.M., kand.tekhn.nauk, dotsent

Effect of slag composition on the activity of the hydrogen dissolved in it. Izv.vys.ucheb.zav.; chern.met. no.6:65-73 Je
'58. (MIRA 12:8)

1. Ural'skiy politekhnicheskiy institut. Rekomendovano kafedroy
teorii metallurgicheskikh protsessov Ural'skogo politekhnicheskogo
instituta.

(Slag--Analysis) (Hydrogen) (Activity coefficients)

CHUCHMAREV, S.K.; YESIN, G.A.; BARMIN, L.N.

Cathodic behavior of hydrogen dissolved in molten oxides. Izv. vys.
ucheb. zav.; chern. met. 4 no.8:9-17 '61. (MIRA 14:9)

1. Ural'skiy politekhnicheskiy institut.
(Slag) (Hydrogen-ion concentration)

BARMIN, L.N.; YESIN, O.A.; CHUCHMAREV, S.K.

Determining water activity in slag by electrochemical methods.
Trudy Ural. politekh. inst. no.93:28-38 '59. (MIRA 15:3)
(Slag) (Water) (Electromotive force)

CHUCHMAREV, S.K.; BARMIN, L.N.

Effect of slag basicity on its penetrability to gas. Trudy Ural.
politekh. inst. no.93:39-43 '59. (MIRA 15:3)
(Slag) (Hydrogen-ion concentration)

SHURYGIN, P. M.; BARMIN, L. N.; YASIN, G. A.

Kinetics of oxide solution in molten silicates. Izv. vys.
ucheb. zav.; chern. met. 5 no.12:5-11 '62.
(MIRA 16:1)

1. Ural'skiy politekhnicheskiy institut.

(Oxides) (Silicates)

SHURYGIN, P.M.; BARMIN, L.N.; BORON'KOV.

Kinetics of the dissolution of aluminum and silicon
oxides in cryolite. Izv. vuz. Tsvetnaya metal. et. 5 no. 4.
106-112 '62. (MRA 1645)

1. Ure'skiy politekhnicheskiy in-t i imeni V. G. Kordil
metallurgicheskikh processov v.
(Rudnye metally. Elektrosmel'nyy)
(Dissolution)

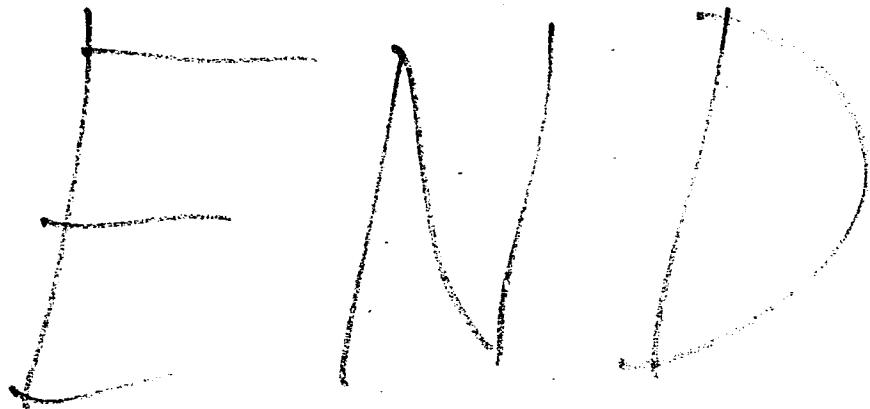
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